LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A fiber laser comprising:

a fiber for generating laser light having an entrance side and an exit side,

a pumped light source for generating pumped light adapted to be coupled into the fiber through the entrance side, and

resonator units provided at the entrance side and/or at the exit side of the fiber for feeding the light, at least one wavelength range, exiting at the entrance and/or the exit side back into the fiber,

wherein said entrance resonator unit and/or the exit resonator unit comprise at least one dielectric layer of variable optical thickness to set the at least one emission range, and

wherein the entrance resonator unit and/or the exit resonator unit comprise a displaceable optical reflecting element to vary the optical thickness of the dielectric layer.

2. (Cancelled).

3. (Currently amended) The fiber laser of claim [[2]] 1, wherein the optical reflecting element of the entrance resonator unit and/or the exit resonator unit is arranged at a variable distance from the entrance side or the exit side, respectively.

4. (Currently amended) ~~The fiber laser of claim 1~~ A fiber laser comprising:

a fiber for generating laser light having an entrance side and an exit side,

a pumped light source for generating pumped light adapted to be coupled into the fiber through the entrance side, and

resonator units provided at the entrance side and/or at the exit side of the fiber for feeding the light, at least one wavelength range, exiting at the entrance and/or the exit side back into the fiber,

wherein said entrance resonator unit and/or the exit resonator unit comprise at least one dielectric layer of variable optical thickness to set the at least one emission range, and wherein the entrance resonator unit and/or the exit resonator unit comprise a pressure variable gaseous medium to vary the optical thickness of the dielectric layer.

5. (Previously presented) The fiber laser of claim 1, wherein, in the entrance resonator unit and/or the exit resonator unit, the dielectric layer is arranged in a variable electric field to vary the optical thickness of the dielectric layer.

6. (Previously presented) The fiber laser of claim 1, wherein the entrance resonator unit and/or the exit resonator unit are, for the laser light to be generated, highly reflective in the wavelength range with the least light amplification, having a reflection factor from 30% to 100%.

7. (Previously presented) The fiber laser of claim 1, wherein the entrance resonator unit has a low reflection factor, especially below 50%, particularly preferred below 10%, for the wavelength range of the pumped light.

8. (Previously presented) The fiber laser of claim 1, wherein, between the reflecting element of the resonator unit and the entrance side of the fiber and/or between the reflective element of the exit resonator unit and the exit side of the fiber, a gap with a width of up to 20 μm is provided which is adjustable and controllable and through the width of which the wavelength of the light emission of the fiber laser may be determined.

9. (Currently amended) The fiber laser of claim [[1]] 8, wherein the gap may be controlled such that laser light is generated simultaneously or individually in at least two wavelength ranges.

10. (Previously presented) The fiber laser of claim 1, wherein the exit resonator unit comprises two mirrors, the first mirror being highly reflective for the laser light to be generated in the wavelength range with the least light amplification, having a reflection factor from 30% - 100%, and the second mirror is suitable for feeding light exiting at the exit side, at least one wavelength range, back into the fiber.

11. (Previously presented) The fiber laser of claim 10, wherein the second mirror of the exit resonator unit is highly reflective at least for the other wavelength range for which the first mirror of the exit resonator unit is substantially transparent so that laser light is generated in this other wavelength range.

12. (Previously presented) The fiber laser of claim 10, wherein the exit resonator unit comprises an optical coupler unit focusing the light exiting from the exit side on the second resonator mirror.

13. (Previously presented) The fiber laser of claim 12, wherein the optical coupler unit is configured such that it serves to control the emission spectrum.

14. (Previously presented) The fiber laser of claim 12, wherein the optical coupler unit is an aspheric lens with chromatic aberration.

15. (Previously presented) The fiber laser of claim 12, wherein the optical coupler unit is adapted to be displaced for the control of the emission spectrum.

16. (Previously presented) The fiber laser of claim 12, wherein the second mirror of the exit resonator unit is adapted to be displaced for the control of the emission spectrum.

17. (Previously presented) The fiber laser of claim 10, wherein the second mirror of the exit resonator unit is connected with an entrance side of a passive optical fiber.

18. (Previously presented) The fiber laser of claim 1, wherein the exit resonator unit comprises only one mirror which is directly connected with the entrance side of a passive optical fiber and forms a gap with the exit side that is up to 20 μm wide.

19. (Previously presented) The fiber laser of claim 1, wherein the entrance side and/or the exit side of the active fiber is coated with one or a plurality of dielectric layers.

20. (Previously presented) The fiber laser of claim 1, wherein the mirrors are multi-layered dielectric mirrors.

21. (Previously presented) The fiber laser of claim 1, wherein single-layered and multi-layered dielectric systems are arranged at the entrance side and/or the exit side.

22. (Previously presented) The fiber laser of claim 1, wherein the displacement or the adjustment of an optical element and/or a plurality of optical elements, mirrors and/or the input coupler unit is effected piezo-electrically and/or electromagnetically and/or by a mechanical actuator.

23. (Previously presented) A method for operating a fiber laser comprising: a fiber for generating laser light having an entrance side and an exit side, a pumped light source for generating pumped light adapted to be coupled into the fiber through the entrance side, and resonator units provided at the entrance side and/or at the exit side of the fiber for feeding the light, at least one wavelength range, exiting at the entrance and/or the exit side back into the fiber, wherein said entrance resonator unit and/or the exit resonator unit comprise at least one dielectric layer of variable optical thickness to set the at least one emission range, wherein a regulating signal is generated from the intensity of the emission power, which adjusts and/or regulates the emission power of the fiber laser by driving the power of the pumping light source and/or the position of one or a plurality of optical elements among the mirrors and the input coupler unit.

24. (Original) The method of claim 23, wherein different regulating signals are generated from the intensity of the simultaneously emitted wavelength ranges.

25. (Original) The method of claim 24, wherein the different regulating signals are generated by a spatial and/or spectral separation and/or a separation of the polarization signals and/or of the noise frequencies of the emitted wavelength ranges.

26. (Previously presented) The method of claim 23, wherein different regulating signals are generated from the intensity of the emission power, which adjust and/or regulate the distribution of the emission power in different wavelength ranges of the fiber laser by driving the power of the pumping light source and/or the position of one or a plurality of optical elements among the mirrors and the input coupler unit.

27. (Previously presented) The method of claim 23, wherein the light emission of the fiber laser in one or a plurality of wavelength ranges is coupled out from the entrance side of the fiber using a suitable optical coupler unit.

28. (New) The fiber laser of claim 4, wherein, in the entrance resonator unit and/or the exit resonator unit, the dielectric layer is arranged in a variable electric field to vary the optical thickness of the dielectric layer.

29. (New) The fiber laser of claim 4, wherein the entrance resonator unit and/or the exit resonator unit are, for the laser light to be generated, highly reflective in the wavelength range with the least light amplification, having a reflection factor from 30% to 100%.

30. (New) The fiber laser of claim 4, wherein the entrance resonator unit has a low reflection factor, especially below 50%, particularly preferred below 10%, for the wavelength range of the pumped light.

31. (New) The fiber laser of claim 4, wherein, between the reflecting element of the resonator unit and the entrance side of the fiber and/or between the reflective element of the exit resonator unit and the exit side of the fiber, a gap with a width of up to 20 µm is provided which is adjustable and controllable and through the width of which the wavelength of the light emission of the fiber laser may be determined.

32. (New) The fiber laser of claim 31, wherein the gap may be controlled such that laser light is generated simultaneously or individually in at least two wavelength ranges.

33. (New) The fiber laser of claim 4, wherein the exit resonator unit comprises two mirrors, the first mirror being highly reflective for the laser light to be generated in the wavelength range with the least light amplification, having a reflection factor from 30% - 100%, and the second mirror is suitable for feeding light exiting at the exit side, at least one wavelength range, back into the fiber.

34. (New) The fiber laser of claim 33, wherein the second mirror of the exit resonator unit is highly reflective at least for the other wavelength range for which the first mirror of the exit resonator unit is substantially transparent so that laser light is generated in this other wavelength range.

35. (New) The fiber laser of claim 33, wherein the exit resonator unit comprises an optical coupler unit focusing the light exiting from the exit side on the second resonator mirror.

36. (New) The fiber laser of claim 35, wherein the optical coupler unit is configured such that it serves to control the emission spectrum.

37. (New) The fiber laser of claim 35, wherein the optical coupler unit is an aspheric lens with chromatic aberration.

38. (New) The fiber laser of claim 35, wherein the optical coupler unit is adapted to be displaced for the control of the emission spectrum.

39. (New) The fiber laser of claim 35, wherein the second mirror of the exit resonator unit is adapted to be displaced for the control of the emission spectrum.

40. (New) The fiber laser of claim 33, wherein the second mirror of the exit resonator unit is connected with an entrance side of a passive optical fiber.

41. (New) The fiber laser of claim 4, wherein the exit resonator unit comprises only one mirror which is directly connected with the entrance side of a passive optical fiber and forms a gap with the exit side that is up to 20 μm wide.

42. (New) The fiber laser of claim 4, wherein the entrance side and/or the exit side of the active fiber is coated with one or a plurality of dielectric layers.

43. (New) The fiber laser of claim 4, wherein the mirrors are multi-layered dielectric mirrors.

44. (New) The fiber laser of claim 4, wherein single-layered and multi-layered dielectric systems are arranged at the entrance side and/or the exit side.

45. (New) The fiber laser of claim 4, wherein the displacement or the adjustment of an optical element and/or a plurality of optical elements, mirrors and/or the input coupler unit is effected piezo-electrically and/or electromagnetically and/or by a mechanical actuator.